Pier #4

Department of Transportation

PILE QUANTITY RECORD

BM 78 in lieu of forms DH-OS-C78 and DH-OS-C78A

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No: 28-0153 Abut / Pier No: 4

N/A Ftg Type: Ftg on CISS Pile Bottom of Footing Eev.: - 15.0 ft Sheet No:

UTED PIPE PILES

Drill Equipment(s): Model(s):

Pile Driving Insp. By: David Nesbitt Pile Quantity Calc. By: Date:

Pile Grout Placing Insp. By: Pile Quantity Check By: Date:

Pile No.	Date Shaft Drilled	Date Grout Placed	(1) Top of Pile Elev.	(2) Spec. Tip Elev.	(3) Theor. Length (2-1)	(4) Revised Spec. Tip Eley.	(5) Revised Theor. Length (4-1)	(6) Actual Tip Elev.(1-5)	(7) Actual Length (6-1)	(8) Pay Length *See Note 1.	Field Splice Elev.	Remarks, (Note Where Additional Remarks are Input, i.e. EPEG)
1			+8	-174	182							
2			+8	-174	182							
3			+8	-174	182							
4			+8	-174	182							
5			+8	-174	182							
6			+8	-174	182							
7			+8	-174	182							
8			+8	-174	182							

Total Item # 24 Total: L.F.

Note 1: The Pay Length (8) is the revised theoretical length (5), unless otherwise revised.

CAISSONS

Item#: 31 Description: 72" Perm. Steel Casing Item #: 30 Description: 66" drilled shaft

Drilled Shaft Insp. By: D. Nesbitt Reinf. Steel Insp. By: D.Nesbitt Conc Placing Insp. By: D.Nesbitt

Quantity Calcs By: D. Nesbitt Date: Quantity Calcs Checked By: Date:

				72" Perm. Steel Casing					66" Drilled Shaft							Reinf.		
Caisson No.	Date Shaft Drilled	Date Rebar Placed	Date Concrete Placed	(1) Top of Caisson Elev.	(2) Spec. Tip elevation	(3) Actual Tip Elev.	(4) Pay Length. (1-3)	Field Splice Elev.	(5) Spec. Tip Elev (Plan)	(6) Spec. Tip Elev (revised)	(7) Actual Tip Elev.	(8) Theor. Lgt. Of Shaft (2-6)	(9) Measured Lgt of Shaft (3-7)	(10) Pay Length (See Note 2)	Remarks, (Note Where Additional Remarks are Input, i.e. EPEG)	Field Splice Elev.	Theor. Length of Rebar Reqd (Lower Cage)	Actual Length of Rebar Req'd (Lower Cage)
11	5/18	5/20	5/21/99	0	-123	-122	122	-42/-14	-168	-167	-166	44	44	44	yes EPEG		75'	75'
12	6/2	6/3	6/4/99	0	-123	-123	123	-43/-15	-168	-168	-169	45	46	45	yes EPEG		75'	75'
13	4/12/99	4/15/99	4/19	0	-123	-123	123	-43/-15	-168	-168	-174	45	51	45	yes EPEG		75' 75	75'
14	4/20/99	4/21	4/30	0	-123	-123	123	-43/-15	-168	-168	-170'	45	47	45	yes EPEG		75' -	75'

Sheet Total Item #: 31 Total 491 LF Item#: 30 Total 179 LF

Note 2: The pay length (10) is the theoretical length (8), except that if the measured length (9) is less than the theoretical length (8) asured length (9) will be the pay length (10)

Additional Remarks:

LOG PILE SHEET(CAISSONS)

Form BM 70 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 1/12

31 Description: 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
0	+10	Stickup		3/22/99					
1	+9								
2	+8								
3	+7								
4	+6								
5	+5								
6	+4								
7	+3								
8	+2								
9	+1								
10	0								
11	-1								
12	-2								
13	-3								
	-4								
	-5								
16	-6								
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
23	-13								
24	-14								
25	-15								
26	-16								
27	-17								
28	-18								
29	-19								
30	-20								
31	-21								
32	-22								
33	-23								
34	-24				Drilling mud with	5/13/99			Contractor began drilling mud in caisson at 7:00 ~~PM~~ AM.
35	-25								
36	-26								
37	-27								
	-28								

Additional Remarks:

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-0440U4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 2/12

31 Description: 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
0	+10	
1	+9	
2	+8	
3	+7	
4	+6	
5	+5	
6	+4	
7	+3	
8	+2	
9	+1	
10	0	
11	-1	
12	-2	
13	-3	
	-4	
	-5	
16	-6	
17	-7	
18	-8	
19	-9	
20	-10	
21	-11	
22	-12	
23	-13	
24	-14	
25	-15	
26	-16	
27	-17	
28	-18	
29	-19	
30	-20	
31	-21	
32	-22	
33	-23	
34	-24	
35	-25	
36	-26	
	-27	
	-28	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 3/12

Item #: 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
39	-29	Stabbed		3/27/99	Drilling	Mud	With	5/13/99	
40	-30								
41	-31								
42	-32								
43	-33								
44	-34								
45	-35								
46	-36								
47	-37								
48	-38								
49	-39								
50	-40								
51	-41								
52	-42								
	-43								
54	-44								
55	-45								
56	-46								
57	-47								
58	-48								
59	-49								Contractor drill rate is approx 8-ft/hour.
60	-50								
61	-51								
62	-52								
63	-53								
64	-54								
65	-55								
66	-56								
67	-57								
68	-58								
69	-59								
70	-60								
71	-61								
72	-62								
73	-63								
74	-64								
75	-65								Contractor Stabbed 80' section
76	-66	Stabbed		3/30/99					
	-67								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 4/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
39	-29	
40	-30	
41	-31	
42	-32	
43	-33	
44	-34	
45	-35	
46	-36	
47	-37	
48	-38	
49	-39	
50	-40	
51	-41	
	-42	
	-43	
54	-44	
55	-45	
56	-46	
57	-47	
58	-48	
59	-49	
60	-50	
61	-51	
62	-52	
63	-53	
64	-54	
65	-55	
66	-56	
67	-57	
68	-58	
69	-59	
70	-60	
71	-61	
72	-62	
73	-63	
74	-64	
75	-65	
	-66	
	-67	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 5/12

Item #: 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	72" Perm. Steel Casing: Placement Method (Driven/others)	72" Perm. Steel Casing: Production Rate (blows/ft), (min./ft)	72" Perm. Steel Casing: Date	Cassion (Material Removal): Production Drilling/Coring Rate (Min./ft)	Cassion (Material Removal): Material Removed (conc./soil)	Cassion (Material Removal): Equip. Used	Cassion (Material Removal): Date	Comments
78	-68	Stabbed		3/3/99	Drilling Mud with			5/13/99	
79	-69								
80	-70								
81	-71								
82	-72								
83	-73								
84	-74								
85	-75								
86	-76								
87	-77								
88	-78								
89	-79								
90	-80								
	-81								
	-82								
93	-83								
94	-84								At 2:00pm, contractor -84' and drill rate is approx. 1 ft/hour.
95	-85								
96	-86								
97	-87								
98	-88								
99	-89								
100	-90								
101	-91								
102	-92								
103	-93								
104	-94								Contractor Stabbed 28' section.
105	-95	Driven	8	4/1/99					
106	-96		3						
107	-97	Stabbed							
108	-98								
109	-99								
110	-100								
111	-101								
112	-102								
113	-103								
114	-104								
	-105								
	-106	Driven	2						

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Project Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 6/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
78	-68	
79	-69	
80	-70	
81	-71	
82	-72	
83	-73	
84	-74	
85	-75	
86	-76	
87	-77	
88	-78	
89	-79	
90	-80	
	-81	
	-82	
93	-83	
94	-84	
95	-85	
96	-86	
97	-87	
98	-88	
99	-89	
100	-90	
101	-91	
102	-92	
103	-93	
104	-94	
105	-95	
106	-96	
107	-97	
108	-98	
109	-99	
110	-100	
111	-101	
112	-102	
113	-103	
114	-104	
	-105	
	-106	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

e Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 7/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
117	-107	Driven	9	4/1/99	Drilling	Mud	Wirth	5/14/99	– Contractor continues drilling to the tip of the caisson. Daisy Gee observed drilling for Dave Nesbitt on 5/14/99.
118	-108		7						
119	-109		8						
120	-110		8						
121	-111		7						
122	-112		7						
123	-113		6						
124	-114		5						
125	-115		5						
126	-116		5						
127	-117		11						
128	-118		31						
129	-119		77						
	-120		111						Piet Hoekman (FCI) stopped driving at tip elevation of -121' 9", due to blow count. Tip elevation is 1'3" too high.
	-121		166						
132	-122	↓	205/9"	↓	↓	↓	↓	↓	
133	-123				Drilling	Rock	Wirth	5/17/99	
134	-124								
135	-125								
136	-126								
137	-127								
138	-128								
139	-129								
140	-130								
141	-131								
142	-132								
143	-133								
144	-134								At 8:49 AM, Contractor at depth of -134'! Contractor was ordered to stop all 66" shaft drilling until the caving ~~is~~ issue is resolved.
145	-135				Drilling	Rock	Wirth	5/18/99	
146	-136								
147	-137								
148	-138								
149	-139								
150	-140								
151	-141								
152	-142								
153	-143								
	-144								
	-145								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-0440U4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 5/12

Item #: 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
117	-107	
118	-108	
119	-109	
120	-110	
121	-111	
122	-112	
123	-113	
124	-114	
125	-115	
126	-116	
127	-117	
128	-118	
129	-119	
	-120	
	-121	
132	-122	
133	-123	
134	-124	
135	-125	
136	-126	
137	-127	
138	-128	
139	-129	
140	-130	
141	-131	
142	-132	
143	-133	
144	-134	
145	-135	Start drilling at 845 am
146	-136	
147	-137	
148	-138	
149	-139	
150	-140	
151	-141	
152	-142	
153	-143	
	-144	
	-145	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-0440U4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 9/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
156	-146				Drilling	Rock	Kurtn	5/18/99	
157	-147								
158	-148								
159	-149								
160	-150								Intake hose leaking on platform, repair for 30 minutes
161	-151								
162	-152								
163	-153								
164	-154								12:35, 4 stems left
165	-155								
166	-156								
167	-157								1:50 pm
168	-158								
	-159								
	-160								2:50 pm 3ft/hr
171	-161								3:55 pm 1ft/hr
172	-162								
173	-163								
174	-164							5/19/99	Contractor began drilling 66" shaft on 5/18/99.
175	-165				3'/hr	Rock	With		
176	-166								Contractor drilled the 66" shaft 10' short.
177	-167								
178	-168								
179	-169								
180	-170								
181	-171								
182	-172								
183	-173								
184	-174								
185	-175								
186	-176								
187	-177								
188	-178								
189	-179								
190	-180								
191	-181								
192	-182								
	-183								
	-184								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-0440U4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

e Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 10/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
156	-146	
157	-147	
158	-148	
159	-149	
160	-150	11:10 am, 11:18 repair hose, begin drilling 11:45
161	-151	
162	-152	
163	-153	
164	-154	12:44 stop drilling to add another drill stem. 12:53 resume drilling
165	-155	
166	-156	
167	-157	
168	-158	
	-159	
	-160	
171	-161	4:37. stop drilling to add another stem, 4:48 resume drilling.
172	-162	
173	-163	
174	-164	
175	-165	5:22 pm, reached 175'. Finished for the day
176	-166	
177	-167	
178	-168	
179	-169	
180	-170	
181	-171	
182	-172	
183	-173	
184	-174	
185	-175	
186	-176	
187	-177	
188	-178	
189	-179	
190	-180	
191	-181	
192	-182	
	-183	
	-184	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 11/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Tip Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
195	-185								
196	-186								
197	-187								
198	-188								
199	-189								
200	-190								
201	-191								
202	-192								
203	-193								
204	-194								
205	-195								
206	-196								
207	-197								
	-198								
	-199								
210	-200								
211	-201								
212	-202								
213	-203								
214	-204								
215	-205								
216	-206								
217	-207								
218	-208								
219	-209								
220	-210								
221	-211								
222	-212								
223	-213								
224	-214								
225	-215								
226	-216								
227	-217								
228	-218								
229	-219								
230	-220								
231	-221								
	-222								
	-223								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 12/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 11

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Tip Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
195	-185	
196	-186	
197	-187	
198	-188	
199	-189	
200	-190	
201	-191	
202	-192	
203	-193	
204	-194	
205	-195	
206	-196	
207	-197	
	-198	
	-199	
210	-200	
211	-201	
212	-202	
213	-203	
214	-204	
215	-205	
216	-206	
217	-207	
218	-208	
219	-209	
220	-210	
221	-211	
222	-212	
223	-213	
224	-214	
225	-215	
226	-216	
227	-217	
228	-218	
229	-219	
230	-220	
231	-221	
	-222	
	-223	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 1/12

31 Description: 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
0	+10	Stabbed		3/15/[illegible]					
1	+9								
2	+8								
3	+7								
4	+6								
5	+5								
6	+4								
7	+3								
8	+2								
9	+1								
10	0								
11	-1								
12	-2								
13	-3								
	-4								
	-5								
	-6								
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
23	-13								
24	-14								
25	-15								
26	-16								
27	-17								
28	-18								
29	-19								
30	-20								
31	-21								
32	-22								
33	-23								
34	-24								
35	-25								
36	-26								
37	-27								
	-28								

tional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 2/12

31 Description: 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Drilled By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
0	+10	
1	+9	
2	+8	
3	+7	
4	+6	
5	+5	
6	+4	
7	+3	
8	+2	
9	+1	
10	0	
11	-1	
12	-2	
13	-3	
	-4	
	-5	
16	-6	
17	-7	
18	-8	
19	-9	
20	-10	
21	-11	
22	-12	
23	-13	
24	-14	
25	-15	
26	-16	
27	-17	
28	-18	
29	-19	
30	-20	
31	-21	
32	-22	
33	-23	
34	-24	
35	-25	
36	-26	
37	-27	
	-28	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 3/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft),	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
39	-29	Stabbed		3/19/99					
40	-30								
41	-31								
42	-32								
43	-33								
44	-34								
45	-35								
46	-36								
47	-37								
48	-38								
49	-39								
50	-40								
51	-41								
52	-42								
	-43								
	-44								
55	-45								
56	-46								
57	-47								
58	-48								
59	-49								
60	-50								
61	-51								
62	-52								
63	-53								
64	-54								
65	-55								
66	-56								
67	-57								
68	-58								
69	-59								
70	-60					Mud Wt. 6/1/99			Contractor began drilling out Csn.
71	-61								
72	-62								
73	-63								
74	-64								
75	-65								
76	-66								
	-67	Stabbed		3/29/99					Contractor Stabbed 80' section.

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 4/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
39	-29	
40	-30	
41	-31	
42	-32	
43	-33	
44	-34	
45	-35	
46	-36	
47	-37	
48	-38	
49	-39	
50	-40	
51	-41	
52	-42	
	-43	
	-44	
55	-45	
56	-46	
57	-47	
58	-48	
59	-49	
60	-50	
61	-51	
62	-52	
63	-53	
64	-54	
65	-55	
66	-56	
67	-57	
68	-58	
69	-59	
70	-60	
71	-61	
72	-62	
73	-63	
74	-64	
75	-65	
76	-66	
	-67	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 5/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
78	-68	Stabbed		3/25/99		mud	W.R.	6/1/99	
79	-69								
80	-70								
81	-71								
82	-72								
83	-73								
84	-74								
85	-75								
86	-76								
87	-77								
88	-78								
89	-79								
90	-80								
91	-81								
	-82								
	-83								
94	-84								
95	-85								
96	-86								
97	-87								
98	-88								
99	-89								
100	-90								
101	-91								
102	-92								
103	-93								
104	-94								Contractor Stabbed 28' section.
105	-95	Driven	4	4/1/99					
106	-96		4						
107	-97		2						
108	-98	Stabbed							
109	-99								
110	-100								
111	-101								
112	-102								
113	-103								
114	-104	Driven	2						
115	-105		3						
	-106		4						

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 6/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
78	-68	
79	-69	
80	-70	
81	-71	
82	-72	
83	-73	
84	-74	
85	-75	
86	-76	
87	-77	
88	-78	
89	-79	
90	-80	
	-81	
	-82	
	-83	
94	-84	
95	-85	
96	-86	
97	-87	
98	-88	
99	-89	
100	-90	
101	-91	
102	-92	
103	-93	
104	-94	
105	-95	
106	-96	
107	-97	
108	-98	
109	-99	
110	-100	
111	-101	
112	-102	
113	-103	
114	-104	
	-105	
	-106	

tional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 7/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft),	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
117	-107	Driven	4	4/1/99		Mud	Earth	6/1/99	
118	-108		4						
119	-109		6						
120	-110		8						
121	-111		5						
122	-112		4						
123	-113		8						
124	-114		8						
125	-115		6						
126	-116		11						
127	-117		10						
128	-118		8						
129	-119		8						
[illegible]	-120		18						
[illegible]	-121		31						
[illegible]	-122		71						
133	-123		148				Rock		
134	-124								
135	-125								
136	-126								
137	-127								
138	-128								
139	-129								
140	-130								
141	-131								
142	-132								
143	-133								
144	-134								
145	-135								
146	-136								
147	-137				3'/hr				
148	-138								
149	-139								
150	-140								
151	-141								
152	-142								
153	-143								
[illegible]4	-144								
L	-145								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 8/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
117	-107	
118	-108	
119	-109	
120	-110	
121	-111	
122	-112	
123	-113	
124	-114	
125	-115	
126	-116	
127	-117	
128	-118	
129	-119	
[illegible]	-120	
[illegible]	-121	
2	-122	
133	-123	
134	-124	
135	-125	
136	-126	
137	-127	
138	-128	
139	-129	
140	-130	
141	-131	
142	-132	
143	-133	
144	-134	
145	-135	
146	-136	
147	-137	
148	-138	
149	-139	
150	-140	
151	-141	
152	-142	
153	-143	
[illegible]54	-144	
[illegible]	-145	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 9/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
156	-146					Rock	Watth	6/1/99	
157	-147								
158	-148								
159	-149				3'/hr.				
160	-150								
161	-151								
162	-152								
163	-153								
164	-154								
165	-155								
166	-156								
167	-157								Contractor stopped drilling 7:30pm, and will continue tomorrow at 6AM.
168	-158								
[illegible]9	-159					Rock	Watth	6/2/99	
[illegible]	-160								
[illegible]1	-161								
[illegible]72	-162				2.5'/hour				
173	-163								
174	-164								
175	-165								
176	-166								
177	-167								
178	-168								
179	-169								Contractor finished drilling at 11:45Am at a depth of -169'.
180	-170								
181	-171								
182	-172								
183	-173								
184	-174								
185	-175								
186	-176								
187	-177								
188	-178								
189	-179								
190	-180								
191	-181								
192	-182								
[illegible]3	-183								
	-184								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 10/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
156	-146	
157	-147	
158	-148	
159	-149	
160	-150	
161	-151	
162	-152	
163	-153	
164	-154	
165	-155	
166	-156	
167	-157	
168	-158	
[illegible]	-159	
[illegible]	-160	
[illegible]1	-161	
[illegible]72	-162	
173	-163	
174	-164	
175	-165	
176	-166	
177	-167	
178	-168	
179	-169	
180	-170	
181	-171	
182	-172	
183	-173	
184	-174	
185	-175	
186	-176	
187	-177	
188	-178	
189	-179	
190	-180	
191	-181	
192	-182	
[illegible]93	-183	
	-184	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 11/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Tip Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
195	-185								
196	-186								
197	-187								
198	-188								
199	-189								
200	-190								
201	-191								
202	-192								
203	-193								
204	-194								
205	-195								
206	-196								
207	-197								
[illegible]	-198								
[illegible]	-199								
[illegible]0	-200								
211	-201								
212	-202								
213	-203								
214	-204								
215	-205								
216	-206								
217	-207								
218	-208								
219	-209								
220	-210								
221	-211								
222	-212								
223	-213								
224	-214								
225	-215								
226	-216								
227	-217								
228	-218								
229	-219								
230	-220								
231	-221								
[illegible]	-222								
[illegible]	-223								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 12/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 12

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Tip Elev. (ft)	Comments
195	-185	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
196	-186	
197	-187	
198	-188	
199	-189	
200	-190	
201	-191	
202	-192	
203	-193	
204	-194	
205	-195	
206	-196	
207	-197	
[illegible]	-198	
[illegible]	-199	
[illegible]	-200	
[illegible]	-201	
212	-202	
213	-203	
214	-204	
215	-205	
216	-206	
217	-207	
218	-208	
219	-209	
220	-210	
221	-211	
222	-212	
223	-213	
224	-214	
225	-215	
226	-216	
227	-217	
228	-218	
229	-219	
230	-220	
231	-221	
[illegible]	-222	
[illegible]	-223	

Additional Remarks:

LOG PILE SHEET (CAISSONS)
Form BM 79 IN LIEU OF DH-OS-C79

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 1/12
Item # 31 Description: 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft
Equipment(s): Model(s): Caisson / Shaft No.: 13
Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
0	+10	Stabbed		3/2/99					Pile stabbed under its own weight
1	+9								80' pipe pile section
2	+8								
3	+7								
4	+6								
5	+5								
6	+4								
7	+3								
8	+2								
9	+1								
10	0								
11	-1								
12	-2								
13	-3								
	-4								
	-5								
16	-6								
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
23	-13								
24	-14								
25	-15								
26	-16								
27	-17								
28	-18								
29	-19								
30	-20								
31	-21								
32	-22								
33	-23								
34	-24								
35	-25								
36	-26								
37	-27								
	-28								

Additional Remarks:

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-0440U4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 2/12

31 Description: 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
0	+10	
1	+9	
2	+8	
3	+7	
4	+6	
5	+5	
6	+4	
7	+3	
8	+2	
9	+1	
10	0	
11	-1	
12	-2	
13	-3	
	-4	
15	-5	
16	-6	
17	-7	
18	-8	
19	-9	
20	-10	
21	-11	
22	-12	
23	-13	
24	-14	
25	-15	
26	-16	
27	-17	
28	-18	
29	-19	
30	-20	
31	-21	
32	-22	
33	-23	
34	-24	
35	-25	
36	-26	
37	-27	
	-28	

Additional Remarks:

LOG PILE SHEET(CAISSONS)
Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 3/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
39	-29	Stabbed		3/2/99					
40	-30								
41	-31								
42	-32								
43	-33								
44	-34								
45	-35								
46	-36								
47	-37								
48	-38								
49	-39								
50	-40								
51	-41								
52	-42								
	-43								
54	-44								
55	-45								
56	-46								
57	-47								
58	-48								
59	-49								
60	-50				Drilling mud	With Drill		4/8/99	Contractor began drilling on 4/8/99, using the with Drill Rig.
61	-51								
62	-52								
63	-53								
64	-54								
65	-55								
66	-56								
67	-57								
68	-58								
69	-59								
70	-60								
71	-61								
72	-62								
73	-63								
74	-64								
75	-65								Contractor welded 28' section
76	-66	Stabbed		3/12/99					
	-67								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 4/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
39	-29	
40	-30	
41	-31	
42	-32	
43	-33	
44	-34	
45	-35	
46	-36	
47	-37	
48	-38	
49	-39	
50	-40	
51	-41	
[illegible]	-42	
	-43	
54	-44	
55	-45	
56	-46	
57	-47	
58	-48	
59	-49	
60	-50	
61	-51	
62	-52	
63	-53	
64	-54	
65	-55	
66	-56	
67	-57	
68	-58	
69	-59	
70	-60	
71	-61	
72	-62	
73	-63	
74	-64	
75	-65	
[illegible]	-66	
	-67	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 5/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
78	-68	Stabbed		3/12/99	Drilling	Mud	Wirth Drill	4/8/99	
79	-69								
80	-70								
81	-71								
82	-72								
83	-73								
84	-74								
85	-75								
86	-76								
87	-77								
88	-78								
89	-79								
90	-80								
	-81								
	-82								
93	-83								
94	-84								
95	-85								
96	-86								
97	-87								
98	-88								
99	-89								
100	-90								
101	-91								
102	-92								
103	-93								
104	-94								Contractor welded 35' Section
105	-95	Driven	8	3/18/99					
106	-96		2						
107	-97	Stabbed							Pile sinking under Hammers weight.
108	-98								
109	-99								
110	-100								
111	-101				Drilling	mud	Wirth Drill	4/9/99	Contractor continue drilling mud.
112	-102								
113	-103								
114	-104								
	-105								
	-106								

Additional Remarks: Hummer: ICE. model 205 S, Rated W.H. energy 170,000 ft-lb.

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Project Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 6/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.:

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
78	-68	
79	-69	
80	-70	
81	-71	
82	-72	
83	-73	
84	-74	
85	-75	
86	-76	
87	-77	
88	-78	
89	-79	
90	-80	
[illegible]	-81	
[illegible]	-82	
93	-83	
94	-84	
95	-85	
96	-86	
97	-87	
98	-88	
99	-89	
100	-90	
101	-91	
102	-92	
103	-93	
104	-94	
105	-95	
106	-96	
107	-97	
108	-98	
109	-99	
110	-100	
111	-101	
112	-102	
113	-103	
114	-104	
[illegible]5	-105	
[illegible]	-106	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 7/12

Pile # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates; changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
117	-107	Started		3/18/99	Drilling	Mud	Wirth Drill	4/9/99	
118	-108								
119	-109								
120	-110								
121	-111								
122	-112								
123	-113								
124	-114								
125	-115	Driven	4						
126	-116		2						
127	-117		4						
128	-118		7						
129	-119		8						
	-120		7						
	-121		8			Rock			
132	-122		51						
133	-123		84						Tip Elevation is -123 feet on 3/18/99
134	-124				Drilling	Rock	Wirth Drill	4/12/99	Contractor Drilled to a depth of -128' on 4/9/99. Contractor will begin Rock socket on 4/12/99
135	-125								
136	-126								
137	-127								
138	-128								
139	-129								
140	-130								
141	-131								
142	-132								
143	-133								
144	-134								
145	-135								
146	-136								
147	-137								
148	-138								
149	-139								
150	-140								
151	-141								
152	-142								
153	-143								
	-144								
	-145								

Additional Remarks: Tim Schelbaum (ECI) stopped the driving at -123.0'.

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 8/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
117	-107	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
118	-108	
119	-109	
120	-110	
121	-111	
122	-112	
123	-113	
124	-114	
125	-115	
126	-116	
127	-117	
128	-118	
129	-119	
[illegible]	-120	
[illegible]	-121	
132	-122	
133	-123	
134	-124	
135	-125	
136	-126	
137	-127	
138	-128	
139	-129	
140	-130	
141	-131	
142	-132	
143	-133	
144	-134	
145	-135	
146	-136	
147	-137	
148	-138	
149	-139	
150	-140	
151	-141	
152	-142	
153	-143	
[illegible]4	-144	
[illegible]	-145	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 9/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft),	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
156	-146				Drilling Rock		Griffith Drilling	4/12/55	
157	-147								
158	-148								
159	-149								
160	-150								
161	-151								
162	-152								
163	-153								
164	-154								
165	-155								
166	-156								
167	-157								
168	-158								
169	-159								
	-160								
171	-161								
172	-162								
173	-163								
174	-164								
175	-165								
176	-166								
177	-167								
178	-168								← Specified Tip elevation at -168'
179	-169								
180	-170								
181	-171								
182	-172								
183	-173								
184	-174								Contractor overdrilled the specified by 6.0' feet on 4/12/55.
185	-175								
186	-176								
187	-177								
188	-178								
189	-179								
190	-180								
191	-181								
192	-182								
193	-183								
	-184								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 10/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
156	-146	
157	-147	
158	-148	
159	-149	
160	-150	
161	-151	
162	-152	
163	-153	
164	-154	
165	-155	
166	-156	
167	-157	
168	-158	
[illegible]	-159	
[illegible]	-160	
171	-161	
172	-162	
173	-163	
174	-164	
175	-165	
176	-166	
177	-167	
178	-168	
179	-169	
180	-170	
181	-171	
182	-172	
183	-173	
184	-174	
185	-175	
186	-176	
187	-177	
188	-178	
189	-179	
190	-180	
191	-181	
192	-182	
[illegible]	-183	
	-184	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 11/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Tip Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
195	-185								
196	-186								
197	-187								
198	-188								
199	-189								
200	-190								
201	-191								
202	-192								
203	-193								
204	-194								
205	-195								
206	-196								
207	-197								
[illegible]	-198								
[illegible]	-199								
210	-200								
211	-201								
212	-202								
213	-203								
214	-204								
215	-205								
216	-206								
217	-207								
218	-208								
219	-209								
220	-210								
221	-211								
222	-212								
223	-213								
224	-214								
225	-215								
226	-216								
227	-217								
228	-218								
229	-219								
230	-220								
231	-221								
[illegible]	-222								
	-223								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 12/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 13

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Tip Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
195	-185	
196	-186	
197	-187	
198	-188	
199	-189	
200	-190	
201	-191	
202	-192	
203	-193	
204	-194	
205	-195	
206	-196	
207	-197	
[illegible]	-198	
	-199	
210	-200	
211	-201	
212	-202	
213	-203	
214	-204	
215	-205	
216	-206	
217	-207	
218	-208	
219	-209	
220	-210	
221	-211	
222	-212	
223	-213	
224	-214	
225	-215	
226	-216	
227	-217	
228	-218	
229	-219	
230	-220	
231	-221	
[illegible]	-222	
	-223	

Additional Remarks:

Cell #19

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 1/12

31 Description: 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Equipment(s): Model(s): Caisson / Shaft No.: 14

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
0	+10	Steel		3/25/99	Drilling	Mud	with	4/21/99	
1	+9								
2	+8								
3	+7								
4	+6								
5	+5								
6	+4								
7	+3								
8	+2								
9	+1								
10	0								
11	-1								
12	-2								
13	-3								
	-4								
	-5								
16	-6								
17	-7								
18	-8								
19	-9								
20	-10								
21	-11								
22	-12								
23	-13								
24	-14								
25	-15								
26	-16								
27	-17								
28	-18								
29	-19								
30	-20								
31	-21								
32	-22								
33	-23								
34	-24								
35	-25								
36	-26								
37	-27								
	-28								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Martinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 2/12

31 Description: 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 14

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
0	+10	
1	+9	
2	+8	
3	+7	
4	+6	
5	+5	
6	+4	
7	+3	
8	+2	
9	+1	
10	0	
11	-1	
12	-2	
13	-3	
	-4	
15	-5	
16	-6	
17	-7	
18	-8	
19	-9	
20	-10	
21	-11	
22	-12	
23	-13	
24	-14	
25	-15	
26	-16	
27	-17	
28	-18	
29	-19	
30	-20	
31	-21	
32	-22	
33	-23	
34	-24	
35	-25	
36	-26	
37	-27	
	-28	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 3/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 14

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
39	-29	Stabbed		3/3/99	Drilling Mud With			4/21/99	
40	-30								
41	-31								
42	-32								
43	-33								
44	-34								
45	-35								
46	-36								
47	-37								
48	-38								
49	-39								
50	-40								
51	-41								
52	-42								
	-43								
54	-44								
55	-45								
56	-46								
57	-47								
58	-48								
59	-49								
60	-50								
61	-51								
62	-52								
63	-53								
64	-54								
65	-55								
66	-56								
67	-57								
68	-58								
69	-59								
70	-60								
71	-61								
72	-62								
73	-63								
74	-64								
75	-65								
76	-66	Stabbed		3/15/99					
	-67								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 4/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 14

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
39	-29	
40	-30	
41	-31	
42	-32	
43	-33	
44	-34	
45	-35	
46	-36	
47	-37	
48	-38	
49	-39	
50	-40	
51	-41	
[illegible]	-42	
	-43	
54	-44	
55	-45	
56	-46	
57	-47	
58	-48	
59	-49	
60	-50	
61	-51	
62	-52	
63	-53	
64	-54	
65	-55	
66	-56	
67	-57	
68	-58	
69	-59	
70	-60	
71	-61	
72	-62	
73	-63	
74	-64	
75	-65	
[illegible]	-66	
	-67	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 5/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 14

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (mln./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
78	-68	Stabbed		3/15/98	Drill	Mud	W.Sth	4/21/98	
79	-69								
80	-70								
81	-71								
82	-72								
83	-73								
84	-74								
85	-75								
86	-76								
87	-77								
88	-78								
89	-79								
90	-80								
	-81								
	-82								
93	-83								
94	-84								
95	-85								
96	-86								
97	-87								
98	-88								
99	-89								
100	-90								
101	-91								
102	-92								
103	-93								* drilling rate is approx 8ft/hour.
104	-94								
105	-95	Driven 3		3/18/98					
106	-96	3							
107	-97	Stabbed							Pile sinking under hammers weight.
108	-98								
109	-99								
110	-100								
111	-101								
112	-102								
113	-103								
114	-104								
	-105								
	-106								

Additional Remarks: Hammer. I.C.E. Model 2055, Rated ~~En~~ W.H. Energy 170,000 ft-lb.

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Project Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 6/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 14

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
78	-68	
79	-69	
80	-70	
81	-71	
82	-72	
83	-73	
84	-74	
85	-75	
86	-76	
87	-77	
88	-78	
89	-79	
90	-80	
	-81	
	-82	
93	-83	
94	-84	
95	-85	
96	-86	
97	-87	
98	-88	
99	-89	
100	-90	
101	-91	
102	-92	
103	-93	
104	-94	
105	-95	
106	-96	
107	-97	
108	-98	
109	-99	
110	-100	
111	-101	
112	-102	
113	-103	
114	-104	
5	-105	
	-106	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 7/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.: 14

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
117	-107	Started		3/18/99	Drill	Mud	with	4/21/99	
118	-108								
119	-109								
120	-110								
121	-111								
122	-112	Driven	6						Drill rate approx. 9 ft/hour.
123	-113		5						
124	-114		4						
125	-115		4						
126	-116		5						
127	-117		4						
128	-118		4					4/22/99	
129	-119		4						
130	-120		7						
	-121		8						
132	-122		43			Rock			
133	-123		81						(40 blows/minute), Tip. elevation at -123' on 3/19/99
134	-124				Drill	Rock	with	4/21/99	Contractor started drilling at 6:00Am
135	-125								
136	-126								
137	-127								
138	-128								
139	-129								
140	-130								
141	-131								
142	-132								
143	-133								
144	-134								
145	-135								
146	-136								
147	-137								
148	-138								
149	-139								
150	-140								
151	-141								Drill rate approx 3.5'/hour.
152	-142								
153	-143								
	-144								Contractor at a depth of -144' at 9:00Am
	-145								

Additional Remarks: Peter Hoekman (FCI) stopped the pile driving at -123'.

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

'ge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 8/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.:

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
117	-107	
118	-108	
119	-109	
120	-110	
121	-111	
122	-112	
123	-113	
124	-114	
125	-115	
126	-116	
127	-117	
128	-118	
129	-119	
[illegible]0	-120	
[illegible]1	-121	
132	-122	
133	-123	
134	-124	
135	-125	
136	-126	
137	-127	
138	-128	
139	-129	
140	-130	
141	-131	
142	-132	
143	-133	
144	-134	
145	-135	
146	-136	
147	-137	
148	-138	
149	-139	
150	-140	
151	-141	
152	-142	
153	-143	
[illegible]4	-144	
[illegible]5	-145	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044004 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 9/12

31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.:

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing				Cassion (Material Removal)				Comments
Penetration (ft)	Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date		Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
156	-146					Drilling Soil/Rock			4/24/09	
157	-147									
158	-148									
159	-149									
160	-150									
161	-151									
162	-152									
163	-153									
164	-154									
165	-155									
166	-156									
167	-157									
168	-158									
169	-159									
	-160									Contractor is at a depth of -140' at 2:00pm drill rate is approx. 35'/hour.
171	-161									
172	-162									
173	-163									
174	-164									
175	-165									
176	-166									
177	-167									
178	-168									← Specified tip elevation = 168', contractor overdrilled 2.0',
179	-169									
180	-170									Contractor finished at a depth of -170 at 5:45pm
181	-171									
182	-172									
183	-173									
184	-174									
185	-175									
186	-176									
187	-177									
188	-178									
189	-179									
190	-180									
191	-181									
192	-182									
193	-183									
	-184									

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 10/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.:

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
156	-146	
157	-147	
158	-148	
159	-149	
160	-150	
161	-151	
162	-152	
163	-153	
164	-154	
165	-155	
166	-156	
167	-157	
168	-158	
[illegible]9	-159	
[illegible]	-160	
171	-161	
172	-162	
173	-163	
174	-164	
175	-165	
176	-166	
177	-167	
178	-168	
179	-169	
180	-170	
181	-171	
182	-172	
183	-173	
184	-174	
185	-175	
186	-176	
187	-177	
188	-178	
189	-179	
190	-180	
191	-181	
192	-182	
[illegible]3	-183	
	-184	

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 11/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.:

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

		72" Perm. Steel Casing			Cassion (Material Removal)				Comments
Penetration (ft)	Tip Elev. (ft)	Placement Method (Driven/others)	Production Rate (blows/ft), (min./ft)	Date	Production Drilling/Coring Rate (Min./ft)	Material Removed (conc./soil)	Equip. Used	Date	Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
195	-185								
196	-186								
197	-187								
198	-188								
199	-189								
200	-190								
201	-191								
202	-192								
203	-193								
204	-194								
205	-195								
206	-196								
207	-197								
[illegible]	-198								
[illegible]	-199								
210	-200								
211	-201								
212	-202								
213	-203								
214	-204								
215	-205								
216	-206								
217	-207								
218	-208								
219	-209								
220	-210								
221	-211								
222	-212								
223	-213								
224	-214								
225	-215								
226	-216								
227	-217								
228	-218								
229	-219								
230	-220								
231	-221								
[illegible]	-222								
[illegible]	-223								

Additional Remarks:

Department of Transportation

LOG PILE SHEET(CAISSONS)

Form BM 79 IN LIEU OF DH-OS-C79

Job Stamp:

04-CC, SOL-680, 780-25 0/25-5, 0.0/0.6
04-044OU4 SEISMIC RETROFIT
BENICIA BRIDGE STRUCTURE

Bridge Name: Benicia-Marinez Toll Bridge Bridge No.: 28-0153 Abut/Pier No.: 4 Sheet No.: 12/12

Item # 31 Description 72" Perm. Steel Casing Item #: 30 Description 66" Drilled Shaft

Drill Equipment(s): Model(s): Caisson / Shaft No.:

Insp. By: Date: Reference Point Description: Top of Footing Elevation: + 10.0 ft

Penetration (ft)	Tip Elev. (ft)	Comments
		Note: equipment breakdown, changes in productivity rates, changes in methods or equipment, reasons for changes, equipment mob/demob, when groundwater is encountered, whether temporary casings or slurries were used, whether soils samples were taken or saved, equip. start/stop times, or any other relevant info.
195	-185	
196	-186	
197	-187	
198	-188	
199	-189	
200	-190	
201	-191	
202	-192	
203	-193	
204	-194	
205	-195	
206	-196	
207	-197	
[illegible]	-198	
[illegible]	-199	
210	-200	
211	-201	
212	-202	
213	-203	
214	-204	
215	-205	
216	-206	
217	-207	
218	-208	
219	-209	
220	-210	
221	-211	
222	-212	
223	-213	
224	-214	
225	-215	
226	-216	
227	-217	
228	-218	
229	-219	
230	-220	
231	-221	
[illegible]	-222	
	-223	

Additional Remarks: